

600 mc

$$\lambda = .5$$

$$V_{300} = \frac{E \lambda}{\pi} \frac{300}{300 + 72} = \frac{E \cdot .5}{\pi} \cdot .8$$

= .127 E at antenna terminal
input of 300 ohm line.

Assume a line attenuation (arbitrarily) of
2.25 db.

$$2.25 = 20 \log (\text{Line loss ratio})$$

$$\text{Line loss ratio} = 1.29$$

To produce .127 E at receiver terminals

requires $1.29 \times .127 E = .162 E$ at antenna
term.

$$V = .162 E \quad \text{or} \quad E = 6.1 V$$

where E is field intensity required to

produce V at 300 ohm receiver input

At 500 mc $E = \frac{600}{500} 6.1 V = 7.3 V$ for same
line attenuation.

FILE { 30 DAYS
TEMPORARY
PERMANENT

62
□
□
□

Company Correspondence

New Holland Pike, P. O. Box 1140
Lancaster, Pa.

Approved by
or
Answered.....

To Mr. D. W. Peterson

Location Princeton

Dept. or
Section Laboratories

Subject:—

Date 11-4-48

I was notified by P. A. Richards that you would like additional information on the parabolic reflector in use at the relay transmitter of the Conestoga Television Association.

The 10 ft. diameter reflector and antenna is described briefly in Electronics for January 1946 and February 1946 in articles titled "Radar on 50 Centimeters". The beam produced is stated to be about 10 degrees wide at its half power points. It is not clear whether this angle is measured in the plane of the dipole or at right angles to the dipole. Since we are using vertical polarization for our relay we have assumed that our vertical pattern is about 12 degrees wide and horizontal pattern about 10 degrees wide to half power points.

The reflector was obtained from:

Communications Equipment Co.
131 E. Liberty St.
New York 7, N. Y.

Digby 9-4124

main 4-8374

It was advertised first in Electronics February 1948 and is described as:

AN/TPS-3 10 ft. diameter dish type parabolic reflector in three portable carrying cases.

mesko

The reflector consists of six outer plywood frame sections and a plywood *hub* section which connect together with quarter-turn fasteners. Each section is covered with copper plated poultry netting. No antenna or other fittings were supplied. The hub contains a 1½" I.D. sleeve at the center through which the dipole and reflector support is mounted. At present we are using a dipole of 1/8" copper tubing fastened directly to the end of fifty feet of RG-84 transmission line. A half wave length parasitic reflector of 1/8" copper tubing is spaced a quarter wave length ahead of the radiating element.

The focal point of the reflector is thirty inches from the hub and is flush with the outer rim of the reflector.

I hope this gives you the information.

RHH:u

cc: PARichards

R. H. Hughes
R. H. HUGHES

Tube Development Shop
Lancaster Engineering Section

MAKE REPLY ON THIS SHEET

Nash. data

305°

	miles	μ volt/meter					
NNW	.5	114000 -				152000	
	1.2	64000 -				141000	
W	.5	38000 -				129000	
	1	12150 -				117000	
J	.5	129000 -				114000	
	.75	4330				64000	
	1.25	117000 -				58500	
NW	1.43	15200 -				39800	
	.25	15200 -				24000	
W	.5	152000 -				27000	50%
	1.25	39800 -				25700	
JW	1.2	58500 -				21000	
	.7	141000 -				17600	70%
E	.75	21000 -				15200	
	1.5	215700 -				15200	80%
SE	.62	4550 -				14000	
	1.08	14050 -				43300	
NE	.88	27000 -				4330	
	1.32	17600 -					

$$\text{Receiver } \overset{\text{input}}{\text{terminal voltage}} = \frac{E}{L_1} = 0.164 E$$

$f_1 = 600 \text{ mc}$

$$\text{Receiver input terminal voltage} = 0.164 \frac{f_1}{f_2} E$$

$f_2 = 500 \text{ mc}$

$$= 0.164 \frac{600}{500} E$$

$$= 0.197 E$$

Converters loaned to P. Richards, Lancaster

A #57

B #1

10-21-4865
D. Pitman

X ← ① Corner Broad & Madison N side of Madison
160 atten 6 1880 $\mu\text{V}/\text{M}$ (Cairns)

X ← ② Lincoln Highway $\frac{1}{2}$ block E of Broad
90 atten 6 847 $\mu\text{V}/\text{M}$

③ 222 S Ann Ann $\frac{1}{2}$ block S of Green (Voight)
60 atten 6 489 $\mu\text{V}/\text{M}$ Behind houses
over 30 ft high

④ Duke St top of hill at Williamson Park S side of rd.
65 atten 16 564 $\mu\text{V}/\text{M}$

⑤ Woodward in 1st block from Strawberry
40 atten 0 not measurable $\mu\text{V}/\text{M}$

⑥ Vine between Queen & Beaver
45 atten 0 not measurable $\mu\text{V}/\text{M}$

⑦ Chestnut in front of post office (between Market & Prince)
95 atten 0 470 $\mu\text{V}/\text{M}$

⑧ Queen End just N of James dipole aimed at
70 atten 0 330 $\mu\text{V}/\text{M}$ Church
far away
signal

⑨ E Liberty between Queen & Christian S side of St.
150 atten 6 1690 $\mu\text{V}/\text{M}$

X ⑩ Not on city maps Blossom hill top of ridge E of Vicks
see Land Topographic Near new Stone Mansion
meter part moves atten 0

10-21-48
J. H. H. P. 66

(11) Mainline Pike 1/2 block E of Wend Ave
175 atten 0 940 $\mu\text{V}/\text{M}$

(12) Pres. Ave 1/2 block N of Harrison Pike W side of St
70 atten 0 330 $\mu\text{V}/\text{M}$

(13) Hamilton Rd between Valley & Harstead
75 atten 0 507 $\mu\text{V}/\text{M}$

(14) Wilson Driv 100 yds N of Whitland Ave
50 atten 0 200 $\mu\text{V}/\text{M}$

(15) Abbeyville Rd Ridge near 7th Ave (Pearl)
150 atten 0 808 $\mu\text{V}/\text{M}$

16 3rd St 50 yd E of Pearl
150 atten 0 808 $\mu\text{V}/\text{M}$

(17) Fairview Ave 20 yds from Vine toward Joseph
200 atten 6 2160 $\mu\text{V}/\text{M}$

(18) Mary St 1/2 way chest to Walnut
155 atten 10 254 $\mu\text{V}/\text{M}$

WITNESSED AND UNDERSTOOD

UEG + 3.16 + 3
BY D. H. H. H. H.

Station ~~ST~~ - Atten.

Rec.
VM

10-20-48

D. M. Peterson

67

X Fern 21 6 75 695 μ /M

X Overly 22 6 70 670

P. Richards 23 6 125 1270

County Club 24 6 140 1510

RCA 25 6 200 2160

Hugbo 26 6 50 394

Barrett 27

Barrett 12 160 25' RBTV } array at
45' RB620 } 5-50

Hoffman 28 6 50 394

College Ave 29 6 190 2070

WITNESSED AND UNDERSTOOD

DEC 19 1948

BY

D. M. Woodward

